

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

	)	
Align Technology, Inc.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	
	)	
3Shape A/S and 3Shape Inc.,	)	
	)	
Defendant.	)	
	)	
AND	)	C.A. No. 1:17-cv-01648-LPS
	)	
3Shape A/S, 3Shape Trios A/S, and 3Shape	)	
Inc.,	)	
	)	<b>PUBLIC VERSION FILED</b>
Counterclaim Plaintiffs,	)	<b>SEPTEMBER 2, 2020</b>
	)	
v.	)	
	)	
Align Technology, Inc.,	)	
	)	
Counterclaim Defendant	)	

**ANSWER AND AFFIRMATIVE DEFENSES OF DEFENDANTS 3SHAPE A/S AND  
3SHAPE, INC. AND COUNTERCLAIMS OF COUNTERCLAIM PLAINTIFFS 3SHAPE  
A/S, 3SHAPE TRIOS A/S, AND 3SHAPE INC. TO ALIGN TECHNOLOGY INC.’S  
FIRST AMENDED COMPLAINT**

Defendants 3Shape A/S and 3Shape, Inc. (collectively “Defendants”), hereby answer Plaintiff Align Technology, Inc.’s (“Align” or “Plaintiff”) First Amended Complaint and present their affirmative defenses, and Counterclaim Plaintiffs 3Shape A/S, 3Shape Trios A/S, and 3Shape Inc. (collectively “3Shape”) hereby present their counterclaims. 3Shape denies all allegations in Align’s Complaint unless expressly admitted. Any admissions herein are for purposes of this matter only. 3Shape reserves the right to take further positions and raise

additional defenses that may become apparent as a result of additional information discovered subsequent to filing this Answer.

### **THE PARTIES**

1. Align is a Delaware corporation incorporated in April 1997, with its principal place of business in San Jose, California.

**ANSWER:** Denied, except Defendants admit upon information and belief that Align is a Delaware Corporation with its principal place of business in San Jose, California.

2. On information and belief, 3Shape A/S (“3Shape A/S”) is a Danish corporation with a principal place of business at Holmens Kanal 7, 1060 Copenhagen K, Denmark.

**ANSWER:** Defendants admit that 3Shape A/S is a Danish corporation with principal place of business at Holmens Kanal 7, 1060 Copenhagen K, Denmark.

3. On information and belief, 3Shape Inc. (“3Shape US”) is a Delaware corporation with a principal place of business at 10 Independence Boulevard, Suite 150, Warren, New Jersey 07059.

**ANSWER:** Defendants admit that 3Shape Inc. is a Delaware corporation with a principal place of business at 10 Independence Boulevard, Suite 150, Warren, New Jersey 07059.

4. On information and belief, 3Shape US is a wholly owned subsidiary of 3Shape A/S.

**ANSWER:** Denied.

5. Defendants make, use, sell, and offer for sale in the United States and/or import into the United States the TRIOS and TRIOS 3 scanners and software products that embody systems and/or methods for intraoral scanning for dental applications.

**ANSWER:** Denied.

### **JURISDICTION AND VENUE**

6. This lawsuit is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

**ANSWER:** This paragraph contains legal conclusions to which no response is required. To the extent any response is required, Defendants admit that Plaintiff purports to bring this action

under the patent laws of the United States, pursuant to Title 35 of the United States Code. To the extent there are any remaining allegations in paragraph 6 not addressed by the foregoing, Defendants deny them.

7. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

**ANSWER:** This paragraph contains legal conclusions to which no response is required. To the extent any response is required, Defendants admit that this Court has subject matter jurisdiction over actions arising under 28 U.S.C. §§ 1331 and 1338, but deny that Plaintiff is entitled to any relief thereunder, and deny all remaining allegations in paragraph 7.

8. This Court has personal jurisdiction over Defendants in that they have, directly or through agents and/or intermediaries, committed acts within Delaware giving rise to this action and/or have established minimum contacts with Delaware such that the exercise of jurisdiction would not offend traditional notions of fair play and justice.

**ANSWER:** This paragraph contains legal conclusions to which no response is required. To the extent any response is required, Defendants are not contesting jurisdiction or venue in the United States District Court for the District of Delaware for the limited purpose of this civil action only, as to the currently named Defendants only. To the extent there are any remaining allegations in paragraph 8 not addressed by the foregoing, Defendants deny them.

9. On information and belief, Defendants regularly conduct business in Delaware, and purposefully avail themselves of the privileges of conducting business in Delaware. In particular, on information and belief, Defendants, directly and/or through their agents and/or intermediaries, make, use, import, offer for sale, sell, and/or advertise their products and affiliated services in Delaware. Defendants have placed, and continue to place, infringing products into the stream of commerce, via an established distribution channel, with the knowledge and/or understanding that such products are sold in the United States including in Delaware and specifically including this District.

**ANSWER:** Denied.

10. On information and belief, Defendants have derived substantial revenue from their infringing activity occurring with the State of Delaware and within this District and/or should reasonably expect their actions to have consequences in Delaware. In addition, Defendants have, and continue to, knowingly induce infringement within this District by

advertising, marketing, offering for sale and/or selling devices containing infringing functionality within this District to at least resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users, and by providing instructions, user manuals, advertising and/or marketing materials which facilitate, direct or encourage the use of infringing functionality with knowledge thereof.

**ANSWER:** Denied.

11. Defendants have committed patent infringement in Delaware that has led to foreseeable harm and injury to Align, a Delaware corporation.

**ANSWER:** Denied.

12. Additionally, 3Shape A/S is subject to jurisdiction in the United States, and specifically in Delaware, pursuant to FED. R. CIV. P. 4(k)(2). 3Shape A/S has contacts with the United States that include, *inter alia*, advertising, offering to sell, and/or selling its products and software throughout the United States, including Delaware and this District.

**ANSWER:** This paragraph contains legal conclusions to which no response is required. To the extent any response is required, 3Shape A/S is not contesting jurisdiction or venue in the United States District Court for the District of Delaware for the limited purpose of this civil action only. To the extent there are any remaining allegations in paragraph 12 not addressed by the foregoing, Defendants deny them.

13. This Court also has personal jurisdiction over 3Shape US because 3Shape US is a Delaware corporation and thus resides within, and has consented to, personal jurisdiction within this District.

**ANSWER:** This paragraph contains legal conclusions to which no response is required. To the extent any response is required, 3Shape US is not contesting jurisdiction or venue in the United States District Court for the District of Delaware for the limited purpose of this civil action only. To the extent there are any remaining allegations in paragraph 13 not addressed by the foregoing, Defendants deny them.

14. The Court further has personal jurisdiction over 3Shape US because 3Shape US has committed, or aided, abetted, contributed, and/or participated in the commission of tortious acts of patent infringement that have led to foreseeable harm and injury to Align, which is a corporation organized and existing under the laws of the State of Delaware. Likewise, 3Shape A/S, alone and/or in concert with 3Shape US or others, has committed, or aided, abetted,

contributed, and/or participated in the commission of tortious acts of patent infringement that have led to foreseeable harm and injury to Align.

**ANSWER:** Denied.

15. Venue is proper pursuant to 28 U.S.C. §§ 1391 and 1400(b).

**ANSWER:** This paragraph contains legal conclusions to which no response is required. To the extent any response is required, 3Shape US is not contesting venue in the United States District Court for the District of Delaware for the limited purpose of this civil action only. To the extent there are any remaining allegations in paragraph 15 not addressed by the foregoing, Defendants deny them.

### **THE PATENTS-IN-SUIT**

16. On August 15, 2006, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,092,107 (“the ‘107 patent”), entitled “Method and Apparatus for Imaging Three-Dimensional Structure,” naming Noam Babayoff and Isaia Glaser-Inbari as the inventors. Align is the owner by assignment of all right, title and interest in the ‘107 patent and has exclusive right to bring suit to enforce the patent. Evidence of such assignment has been recorded with the U.S. Patent and Trademark Office at Reel/Frame 034482/0410. A true and correct copy of the ‘107 patent is attached hereto as Exhibit 1.

**ANSWER:** Defendants admit U.S. Patent No. 7,092,107 (“the ‘107 patent”) states that it issued on August 15, 2006. The ‘107 patent is entitled “Method and Apparatus for Imaging Three-Dimensional Structure” and names Noam Babayoff and Isaia Glaser-Inbari as inventors. To the extent there are any remaining allegations in paragraph 16 not addressed by the foregoing, Defendants deny them.

17. On June 18, 2019, the Patent Trial and Appeal Board issued its decision denying institution of 3Shape’s petition for *inter partes* review of the ‘107 patent, Case IPR2019-00149. The Board held that 3Shape had not demonstrated a reasonable likelihood of prevailing on its challenge to claims 1-17 of the ‘107 patent.

**ANSWER:** This paragraph contains legal conclusions to which no response is required.

Defendants admit that on June 18, 2019, the Patent Trial and Appeal Board issued a decision denying institution of 3Shape’s petition for *inter partes* review of the ‘107 patent. To the extent

there are any remaining allegations in paragraph 17 to which a response is required that are not addressed by the foregoing, Defendants deny them.

18. On April 11, 2017, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 9,615,901 (“the ‘901 patent”), entitled “Method and Apparatus for Imaging Three-Dimensional Structure,” naming Noam Babayoff and Isaia Glaser-Inbari as the inventors. Align is the owner of all right, title and interest in the ‘901 patent and has exclusive right to bring suit to enforce the patent. A true and correct copy of the ‘901 patent is attached hereto as Exhibit 2.

**ANSWER:** Defendants admit U.S. Patent No. 9,615,901 (“the ‘901 patent”) states that it issued on April 11, 2017. The ‘901 patent is entitled “Method and Apparatus for Imaging Three-Dimensional Structure” and names Noam Babayoff and Isaia Glaser-Inbari as inventors. To the extent there are any remaining allegations in paragraph 18 not addressed by the foregoing, Defendants deny them.

19. On July 16, 2020, the Patent Trial and Appeal Board issued its Final Written Decision on 3Shape’s petition for *inter partes* review of the ‘901 patent, Case IPR2019-00152. The Board upheld the patentability of all challenged claims of the ‘901 patent except for claims 15 and 20.

**ANSWER:** This paragraph contains legal conclusions to which no response is required. Defendants admit that on July 16, 2020, the Patent Trial and Appeal Board issued its Final Written Decision on 3Shape’s petition for *inter partes* review of the ‘901 patent. To the extent there are any remaining allegations in paragraph 19 to which a response is required that are not addressed by the foregoing, Defendants deny them.

20. On January 28, 2014, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,638,448 (“the ‘448 patent”), entitled “Method and Apparatus for Imaging Three-Dimensional Structure,” naming Noam Babayoff and Isaia Glaser-Inbari as the inventors. Align is the owner by assignment of all right, title and interest in the ‘448 patent and has exclusive right to bring suit to enforce the patent. Evidence of such assignment has been recorded with the U.S. Patent and Trademark Office at Reel/Frame 034482/0410. A true and correct copy of the ‘448 patent is attached hereto as Exhibit 3.

**ANSWER:** Defendants admit U.S. Patent No. 8,638,448 (“the ‘448 patent”) states that it issued on January 28, 2014. The ‘448 patent is entitled “Method and Apparatus for Imaging Three-

Dimensional Structure” and names Noam Babayoff and Isaia Glaser-Inbari as inventors. To the extent there are any remaining allegations in paragraph 20 not addressed by the foregoing, Defendants deny them.

21. On July 16, 2020, the Patent Trial and Appeal Board issued its Final Written Decision on 3Shape’s petition for *inter partes* review of the ‘448 patent, Case IPR2019-00151. The Board upheld the patentability of all challenged claims of the ‘448 patent.

**ANSWER:** This paragraph contains a legal conclusion to which no response is required.

Defendants admit that on July 16, 2020, the Patent Trial and Appeal Board issued its Final Written Decision on 3Shape’s petition for *inter partes* review of the ‘448 patent. The Final Written Decision on 3Shape’s petition for *inter partes* review of the ‘448 patent is a writing that speaks for itself. To the extent there are any characterizations of this Final Written Decision contained within paragraph 21 that are inconsistent with the writing, Defendants deny them. To the extent there are any remaining allegations in paragraph 21 to which a response is required that are not addressed by the foregoing, Defendants deny them.

22. On January 28, 2014, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,638,447 (“the ‘447 patent”), entitled “Method and Apparatus for Imaging Three-Dimensional Structure,” naming Noam Babayoff and Isaia Glaser-Inbari as the inventors. Align is the owner by assignment of all right, title and interest in the ‘447 patent and has exclusive right to bring suit to enforce the patent. Evidence of such assignment has been recorded with the U.S. Patent and Trademark Office at Reel/Frame 034482/0410. A true and correct copy of the ‘447 patent is attached hereto as Exhibit 4.

**ANSWER:** Defendants admit U.S. Patent No. 8,638,447 (“the ‘447 patent”) states that it issued on January 28, 2014. The ‘447 patent is entitled “Method and Apparatus for Imaging Three-Dimensional Structure” and names Noam Babayoff and Isaia Glaser-Inbari as inventors. To the extent there are any remaining allegations in paragraph 22 not addressed by the foregoing, Defendants deny them.

23. On June 17, 2020, the Patent Trial and Appeal Board issued its Final Written Decision on 3Shape’s petition for *inter partes* review of the ‘447 patent, Case IPR2019-00150. The Board upheld the patentability of all challenged claims of the ‘447 patent.



**ANSWER:** This paragraph contains legal conclusions to which no response is required.

Defendants admit that on June 17, 2020, the Patent Trial and Appeal Board issued its Final Written Decision on 3Shape's petition for *inter partes* review of the '447 patent. The Final Written Decision on 3Shape's petition for *inter partes* review of the '447 patent is a writing that speaks for itself. To the extent there are any characterizations of this Final Written Decision contained within paragraph 23 that are inconsistent with the writing, Defendants deny them. To the extent there are any remaining allegations in paragraph 23 to which a response is required that are not addressed by the foregoing, Defendants deny them.

24. On January 18, 2005, the U.S. Patent and Trademark Office duly and lawfully issued U.S. Patent No. 6,845,175 ("the '175 patent"), entitled "Dental Image Processing Method and System," naming Avi Kopelman and Eldad Taub as the inventors. Align is the owner by assignment of all right, title and interest in the '175 patent and has exclusive right to bring suit to enforce the patent. Evidence of such assignment has been recorded with the U.S. Patent and Trademark Office at Reel/Frame 034482/0201. A true and correct copy of the '175 patent is attached hereto as Exhibit 5.

**ANSWER:** Defendants admit U.S. Patent No. 6,845,175 ("the '175 patent") states that it issued on January 18, 2005. The '175 patent is entitled "Dental Image Processing Method and System" and names Avi Kopelman and Eldad Taub as inventors. To the extent there are any remaining allegations in paragraph 24 not addressed by the foregoing, Defendants deny them.

### **BACKGROUND**

25. Align is a global medical device company with industry leading innovative products such as iTero intraoral scanners and OrthoCAD software that help dental and orthodontic professionals deliver effective, cutting-edge dental and orthodontic options to their patients.

**ANSWER:** Denied, except Defendants admit that Align is a global medical device company that sells iTero and OrthoCAD software in the United States.

26. Align's iTero intraoral scanners scan and provide, in conjunction with Align's OrthoCAD software, 3D imaging of an intraoral surface, such as the teeth and gums, without drying and powdering the intraoral surface, resulting in a digital impression. Align's iTero



intraoral scanners and the software that works in conjunction with the scanner thus eliminate the need for traditional teeth impressions typically taken with an elastomeric or other material.

**ANSWER:** Denied, except Defendants admit that Align iTero scanners provide 3D scanning capabilities allowing for digital impressions of a patient's full mouth for orthodontic treatment.

27. The digital impression captured by Align's iTero intraoral scanners, when teamed with Align's OrthoCAD software, can be used in a variety of dental and orthodontic applications, such as, for example, modeling the occlusion between the patient's teeth and processing images that are capable of describing relationships between the various parts of the skeletal, dental and soft tissue elements of the cranofacial complex.

**ANSWER:** Denied, except Defendants admit that Align iTero scanners provide 3D scanning capabilities allowing for digital impressions of a patient's full mouth for orthodontic treatment.

28. Align's iTero intraoral scanner and OrthoCAD digital software constitute a proprietary system and method for treating, among other things, malocclusion, misalignment, and/or chipped or missing teeth. Align's high precision, high speed intraoral scanner and related software allow for the creation of a variety of orthodontic and dental devices including, but not limited to, crowns, bridges, bracket templates, aligners and implants. Each dental device is custom-manufactured for each patient using computer-aided design techniques and sophisticated computer graphic interfaces to communicate with the patient's dental or orthodontic professional in the planning and implementation of the customized treatment program.

**ANSWER:** Denied, except Defendants admit that Align's iTero scanners are promoted as assisting clinicians and technicians in the treatment of dental disorders and orthodontia.

29. Align's iTero intraoral scanner and OrthoCAD software, developed by Align over many years and at great expense and effort, represents a breakthrough in the manufacturing principle of "mass customization" and a vast improvement over conventional methods for treating, among other things, chipped or missing teeth, misalignment of teeth, and malocclusion. Additionally, the iTero intraoral scanner and OrthoCAD software provide a "chair-side" platform for live viewing of the digital impression as it is being built on the display screen during scanning, for accessing valuable digital diagnosis and treatment tools, and for enhancing accuracy of records, treatment efficiency, and the overall patient experience. The innovations embodied in Align's iTero intraoral scanner and OrthoCAD software are protected by numerous United States and foreign patents.

**ANSWER:** Defendants are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 29, and therefore deny the same.

30. On information and belief, defendant 3Shape designs, develops, manufactures, and markets the TRIOS and TRIOS 3 scanners, as well as the related Dental System software products that include software modules including, but not limited to, the Implant Studio, Ortho System, Ortho Analyzer, Ortho Planner, Appliance Designer and Ortho Control Patent (hereinafter “Dental System software products”). Moreover, 3Shape is involved in the sale of and/or importation into the United States of intraoral scanners, digital models, and digital data and Dental System software products for dental and orthodontic applications including, but not limited to, crowns, bridges, bracket templates, aligners and implants. 3Shape’s intraoral scanners, digital and physical models generated from digital data using 3Shape software, and 3Shape’s software products for dental and orthodontic applications described above embody and/or use the patented apparatuses, systems, and methods at issue.

**ANSWER:** Denied.

31. 3Shape’s TRIOS and TRIOS 3 scanners, as well as 3Shape’s related Dental System software products, directly compete with the Align’s iTero scanners and OrthoCad software. On information and belief, 3Shape developed, made, and sold its intraoral scanners and software with the intent to directly compete with Align’s intraoral scanners and software. Before introducing its products, 3Shape was aware of the structure, design and operation of Align’s patented intraoral scanners and software, including but not limited to intraoral scanners and software developed by Cadent Holdings, Inc. (“Cadent”), which Align acquired on April 29, 2011. Moreover, 3Shape has previously entered into agreements with Align that provided 3Shape with significant access to Align’s patented technologies.

**ANSWER:** Denied that TRIOS and TRIOS 3 are products of 3Shape A/S and 3Shape US and therefore deny the allegations of paragraph 31, except admit that the TRIOS and iTero scanners compete against each other in the Market for Scanners for Orthodontic Treatment.

32. On information and belief, 3Shape developed, made, and sold its infringing TRIOS and TRIOS 3 scanners and related infringing Dental System software products despite having knowledge of the Align patents at issue (i) based, at a minimum, on its knowledge of the Align intraoral scanners and software being covered by numerous patents including the patents at issue through its prior business dealings with Align, including those with Cadent, whereby 3Shape acquired specific and detailed knowledge from Align regarding the structure, function, operation and commercial benefits of the Align products and the patent protection afforded to certain structures, functions and operations of the patented Align technology; (ii) by virtue of 3Shape’s patent prosecution activities wherein Align’s patents at issue and/or family members were cited as prior art, including but not limited to U.S. Patent Nos. 7,092,107, 9,615,901, 8,638,448, 8,638,447, 6,845,175, or related family members; and/or (iii) by virtue of 3Shape’s U.S. Food and Drug Administration Section 510(k) premarket notification of intent to market the accused products, which identifies 3Shape’s accused products as substantially equivalent to Align’s patent-practicing products (*see, e.g.*, Exhibit 6).

**ANSWER:** Denied.

### **COUNT ONE - INFRINGEMENT OF THE '107 PATENT**

33. Align incorporates by reference its allegations in Paragraphs 1-32 as if fully restated in this paragraph.

**ANSWER:** Defendants restate and reincorporate their response to paragraphs 1-32 as if fully set forth herein.

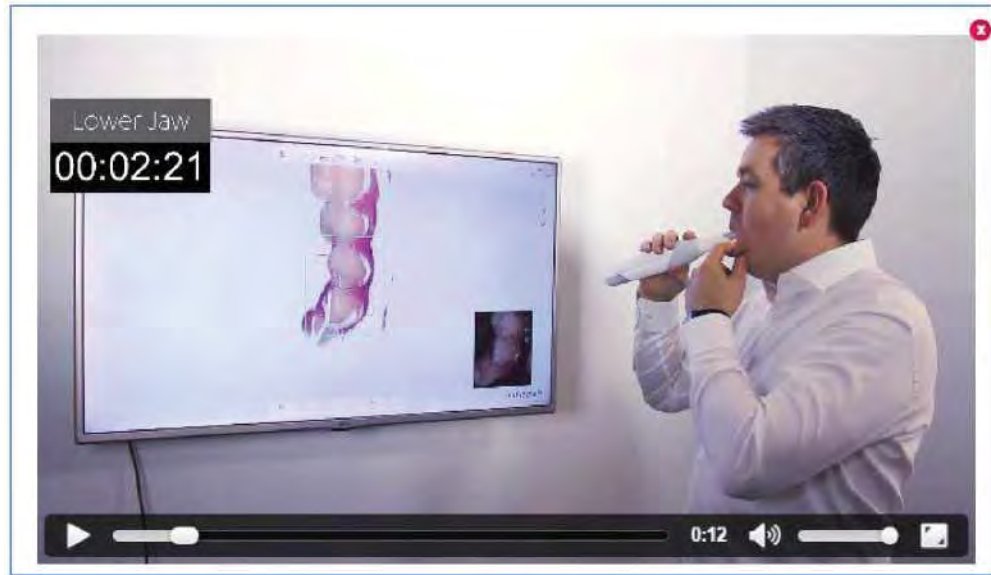
34. On information and belief, 3Shape has been and is now directly and/or indirectly infringing, literally and/or under the doctrine of equivalents, the '107 patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products covered by one or more of the claims of the '107 patent, including the TRIOS and TRIOS 3 scanners, as well as the related Dental System software products.

**ANSWER:** Denied.

35. The '107 patent is generally directed to determining and imaging three-dimensional structures. Claim 1 of the '107 patent recites a method for determining surface topology of a portion of a three-dimensional structure, comprising: providing an array of incident light beams propagating in an optical path leading through a focusing optics and through a probing face; the focusing optics defining one or more focal planes forward said probing face in a position changeable by said optics, each light beam having its focus on one of said one or more focal plane; the beams generating a plurality of illuminated spots on the structure; detecting intensity of returned light beams propagating from each of these spots along an optical path opposite to that of the incident light; repeating steps (a) and (b) a plurality of times, each time changing position of the focal plane relative to the structure; for each of the illuminated spots, determining a spot-specific position, being the position of the respective focal plane yielding a maximum measured intensity of a respective returned light beam; and generating data representative of the topology of said portion.

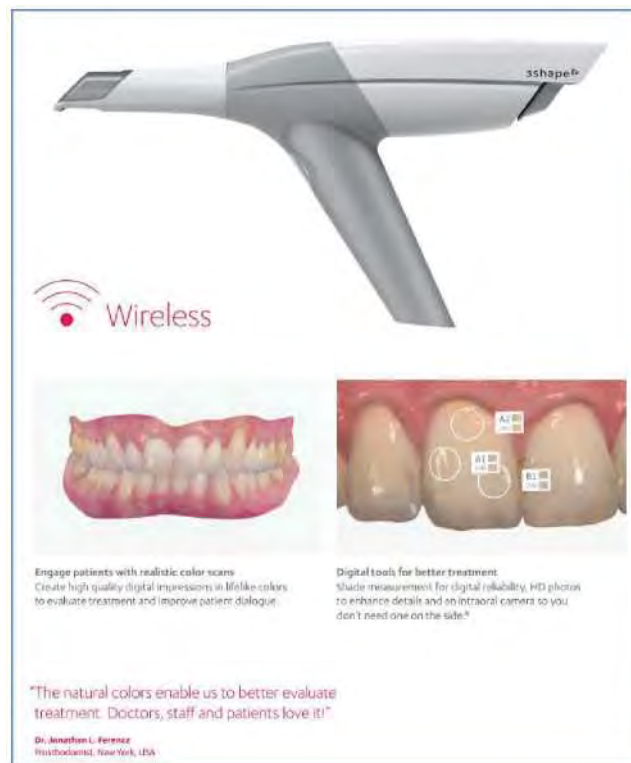
**ANSWER:** Denied.

36. Upon information and belief, 3Shape's TRIOS and TRIOS 3 scanners, as well as the related Dental System software products, infringe at least claim 1 of the '107 patent. For example, 3Shape's TRIOS and TRIOS 3 scanners, used with the related Dental System software products, provide an array of incident light beams propagating in an optical path leading through a focusing optics and through a probing face; the focusing optics define one or more focal planes forward said probing face in a position changeable by said optics, each light beam has its focus on one of said one or more focal plane; the beams generate a plurality of illuminated spots on the structure; detect intensity of returned light beams propagating from each of these spots along an optical path opposite to that of the incident light; repeat steps (a) and (b) a plurality of times, each time changing position of the focal plane relative to the structure; for each of the illuminated spots, determine a spot-specific position, being the position of the respective focal plane yielding a maximum measured intensity of a respective returned light beam; and generate data representative of the topology of said portion, as shown, for example, in the demonstration video, TRIOS brochure, and press release below.



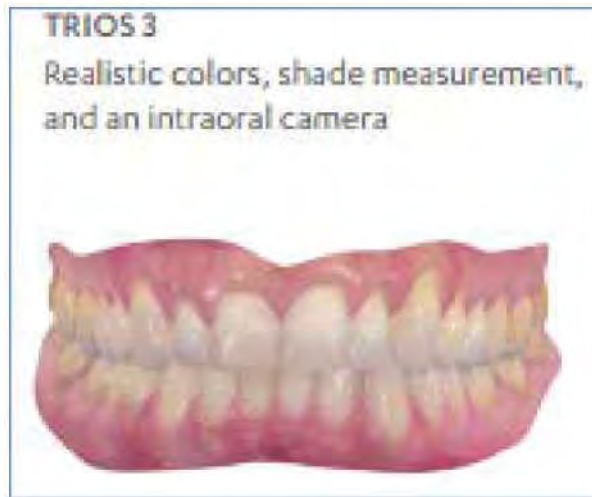
(See, e.g., 3Shape TRIOS® Video (3Shape website, available at:

<http://www.3shape.com/products/trios/intraoral-scanners#myModal>) (the specific version of the video screenshotted above may no longer be available on 3Shape's website.))



(See, e.g., 3Shape TRIOS® Digital Impression Solution Brochure; 3Shape Orthodontics Lab Brochure (3Shape website, available at: <http://www.3shape.com/en/products/orthodontic-system/intraoral-scanner-orthodontics-software-myModal>).)

(Id.)



(Id.)



(Id.)



**Are there other advantages for patients?**

The accuracy of digital impressions and the resulting crowns means a much better fitting restoration. The accuracy also cuts down on the need for remakes. So patient-visits are quicker and they don't have to come back for adjustments. Also if you're practicing same day dentistry you're eliminating second visits. So besides patient comfort, digital speed and accuracy are huge advantages.

Another interesting benefit when working with 3D digital color impressions is that you now have the patient's mouth on the big screen. You can show the patient what is going in their mouth.

You don't know how many dentists have told us about their patients' reactions to seeing their mouths onscreen for the very first time. And how many times the patient has ended up asking to have additional work done. Digital impressions are an important tool in helping to gain treatment acceptance from patients.

When you factor in the time savings, in terms of scanning, design and production, digital dentistry is just a more efficient way to work.

(See, e.g., 3Shape TRIOS® Knowledge Center (3Shape website, available at: <https://www.3shape.com/en/news/2015/why-your-patients-love-digital-technology>).)

**ANSWER:** Denied.

37. 3Shape possesses knowledge of and is aware of the '107 patent by virtue of, at a minimum, filing this Complaint and, on information and belief, had prior knowledge of the '107 patent by virtue of the prior business dealings between 3Shape and Align and other facts described above.

**ANSWER:** Denied.

38. 3Shape also has been and is now actively inducing infringement of one or more claims of the '107 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

39. On information and belief, 3Shape A/S alone and/or acting in concert with, directing and/or authorizing 3Shape US to make, use, sell, or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others. On information and belief, 3Shape A/S induces 3Shape US to infringe.

**ANSWER:** Denied.

40. On information and belief, 3Shape US alone and/or acting in concert with, directing and/or authorizing 3Shape A/S to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others.

**ANSWER:** Denied.

41. 3Shape has intended, and continues to intend to induce infringement of the '107 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, 3Shape is aware that the features claimed in the '107 patent are features in the TRIOS, TRIOS 3, and/or the related Dental System software products and are

features used by others that purchase TRIOS, TRIOS 3, and/or related Dental System software products and, therefore, that purchasers and end users will infringe the '107 patent by using the TRIOS, TRIOS 3, and/or the related Dental System software products. 3Shape actively induces infringement of the '107 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the TRIOS, TRIOS 3, and/or the related Dental System software products and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides, and technical information (including but not limited to the demonstration video, brochure, and press release described in this Count of the Complaint) to others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products. Those third parties directly infringe the '107 patent by making, using, selling, offering for sale, and/or importing the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

42. 3Shape also has been and is now contributing to the infringement of one or more claims of the '107 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

43. 3Shape has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the '107 patent by having sold or offered to sell and continuing to sell or offer for sale the TRIOS, TRIOS 3, and/or the related Dental System software products within in the United States and/or by importing the TRIOS, TRIOS 3, and/or the related Dental System software products into the United States, with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is especially made and/or especially adapted for use in infringement of the '107 patent. 3Shape has contributed to the infringement by others with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is a material part of the patented invention, and with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products, infringe and will continue to infringe the '107 patent because, due to their specific designs, the accused products and components thereof do not have any substantial non-infringing uses. 3Shape has such knowledge at least because the claimed features of the '107 patent are used by others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

44. On information and belief, 3Shape knew or should have known of the '107 patent and has acted, and continues to act, in an egregious and wanton manner by infringing '107



patent. On information and belief, 3Shape's infringement of the '107 patent has been and continues to be willful and deliberate. The market for intraoral scanners and related dental and orthodontic software products is small and contains a limited number of competitors, with Align being a known pioneer with whom 3Shape has great familiarity. The companies have worked together in the past and 3Shape has had ample access to Align's technology. Upon information and belief, 3Shape knowingly developed and sold its competitive knockoff products in an infringing manner that was known to 3Shape or was so obvious that 3Shape should have known about this infringement.

**ANSWER:** Denied.

45. On information and belief, despite knowing that its actions constituted infringement of the '107 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the patent, 3Shape nevertheless continued its infringing actions, and continues to make, use and sell its infringing products.

**ANSWER:** Denied.

46. 3Shape's acts of infringement have injured and damaged Align.

**ANSWER:** Denied.

#### **COUNT TWO - INFRINGEMENT OF THE '901 PATENT**

47. Align incorporates by reference its allegations in Paragraphs 1-46 as if fully restated in this paragraph.

**ANSWER:** Defendants restate and reincorporate their response to paragraphs 1-46 as if fully set forth herein.

48. On information and belief, 3Shape has been and is now directly and/or indirectly infringing, literally and/or under the doctrine of equivalents, the '901 patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products covered by one or more of the claims of the '901 patent, including the TRIOS and TRIOS 3, as well as the related Dental System software products.

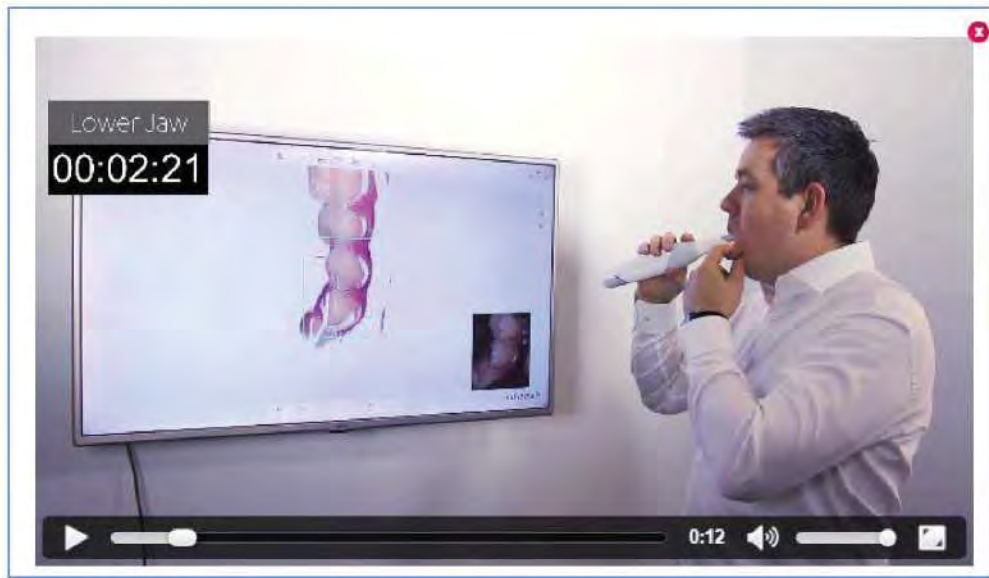
**ANSWER:** Denied.

49. The '901 patent is generally directed to determining and imaging three-dimensional structures. Claim 1 of the '901 patent recites an apparatus for determining surface topology of a portion of a three-dimensional structure, the apparatus comprising: a probing member; an illumination unit configured to generate a plurality of incident light beams; an optical system configured to focus the plurality of incident light beams to a focal plane external to the probing member so as to illuminate the portion of the three-dimensional structure; a detector unit configured to measure a characteristic of a plurality of returned light beams generated from illuminating the portion of the three-dimensional structure with the plurality of

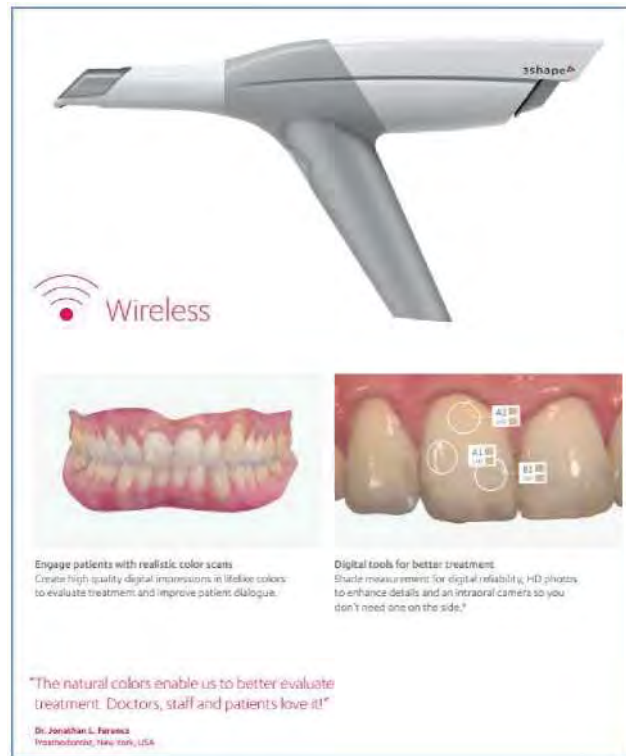
incident light beams; and a processor coupled to the detector unit and configured to determine a surface topology of the portion of the three-dimensional structure based at least in part on the measured characteristic of the plurality of returned light beams.

**ANSWER:** Denied.

50. 3Shape's TRIOS, TRIOS 3, and/or the related Dental System software products, infringe at least claim 1 of the '901 patent. For example, 3Shape's TRIOS and TRIOS 3, used with the related Dental System software products, have a probing member; an illumination unit configured to generate a plurality of incident light beams; an optical system configured to focus the plurality of incident light beams to a focal plane external to the probing member so as to illuminate the portion of the three-dimensional structure; a detector unit configured to measure a characteristic of a plurality of returned light beams generated from illuminating the portion of the three-dimensional structure with the plurality of incident light beams; and a processor coupled to the detector unit and configured to determine a surface topology of the portion of the three-dimensional structure based at least in part on the measured characteristic of the plurality of returned light beams, as shown, for example, in the demonstration video, TRIOS brochure, and press release below.



(See, e.g., 3Shape TRIOS® Video (3Shape website, available at: <http://www.3shape.com/products/trios/intraoral-scanners#myModal>) (the specific version of the video screenshotted above may no longer be available on 3Shape's website).)



(See, e.g., 3Shape TRIOS® Digital Impression Solution Brochure (3Shape website, available at: <http://www.3shape.com/en/products/orthodontic-system/intraoral-scanner-orthodontics-software-myModal>).



(Id.)

Choose your workflows  
3Shape TRIOS  
Send to lab

Get the full range of indications, materials and expertise  
freely connect to thousands of labs. Easily communicate and interact with the lab using 3Shape TRIOS® and 3Shape Communicate on your mobile device and web browser. 3Shape TRIOS enables the widest range of treatment options with verified CAD/CAM lab workflows.

Crowns	Bridges	Veneers, inlays & onlays
Removable partial dentures Exclusive to FRIE	Temporary crowns and surgical diagnostic wax-ups Exclusive to TRIOS	Root and cone Exclusive to TRIOS
Abutments, implant bridges and bars	Implants	3Shape <i>designlight</i>

Download the 3Shape  
Communicate App  
Google Play and the App Store



(Id.)

**Are there other advantages for patients?**

The accuracy of digital impressions and the resulting crowns means a much better fitting restoration. The accuracy also cuts down on the need for remakes. So patient-visits are quicker and they don't have to come back for adjustments. Also if you're practicing same day dentistry you're eliminating second visits. So besides patient comfort, digital speed and accuracy are huge advantages.

Another interesting benefit when working with 3D digital color impressions is that you now have the patient's mouth on the big screen. You can show the patient what is going in their mouth. You don't know how many dentists have told us about their patients' reactions to seeing their mouths onscreen for the very first time. And how many times the patient has ended up asking to have additional work done. Digital impressions are an important tool in helping to gain treatment acceptance from patients.

When you factor in the time savings, in terms of scanning, design and production, digital dentistry is just a more efficient way to work.

(See, e.g., 3Shape TRIOS® Knowledge Center (3Shape website, available at: <https://www.3shape.com/en/news/2015/why-your-patients-love-digital-technology>).)

**ANSWER:** Denied.

51. 3Shape possesses knowledge of and is aware of the '901 patent by virtue of, at a minimum, filing this Complaint and, on information and belief, had prior knowledge of the '901 patent by virtue of the prior business dealings between 3Shape and Align and other facts described above.

**ANSWER:** Denied.

52. 3Shape also has been and is now actively inducing infringement of one or more claims of the '901 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

53. On information and belief, 3Shape A/S alone and/or acting in concert with, directing and/or authorizing 3Shape US to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others. On information and belief, 3Shape A/S induces 3Shape US to infringe.

**ANSWER:** Denied.

54. On information and belief, 3Shape US alone and/or acting in concert with, directing and/or authorizing 3Shape A/S to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others.

**ANSWER:** Denied.

55. 3Shape has intended, and continues to intend to induce infringement of the '901 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, 3Shape is aware that the features claimed in the '901 patent are features in the TRIOS, TRIOS 3, and/or the related Dental System software products and are features used by others that purchase TRIOS, TRIOS 3, and/or the related Dental System software products and, therefore, that purchasers and end users will infringe the '901 patent by using the TRIOS, TRIOS 3, and/or the related Dental System software products. 3Shape actively induces infringement of the '901 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the TRIOS, TRIOS 3, and/or the related Dental System software products and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides, and technical information (including but not limited to the demonstration video, brochure, and press release described in this Count of the Complaint) to others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products. Those third parties directly infringe the '901 patent by making, using, selling, offering for sale, and/or importing the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

56. 3Shape also has been and is now contributing to the infringement of one or more claims of the '901 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

57. 3Shape has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the '901 patent by having sold or offered to sell and continuing to sell or offer for sale the TRIOS, TRIOS 3, and/or the related Dental System software products within in the United States and/or by importing the TRIOS, TRIOS 3, and/or the related Dental System software products into the United States, with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is especially made and/or especially adapted for use in infringement of the '901 patent. 3Shape has contributed to the infringement by others with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is a material part of the patented invention, and with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products, infringe and will continue to infringe the '901 patent because, due to their specific designs, the accused products and components thereof do not have any substantial non-infringing uses. 3Shape has such knowledge at least because the claimed features of the '901 patent are used by others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

58. On information and belief, 3Shape knew or should have known of the '901 patent and has acted, and continues to act, in an egregious and wanton manner by infringing '901 patent. On information and belief, 3Shape's infringement of the '901 patent has been and continues to be willful and deliberate. The market for intraoral scanners and related dental and orthodontic software products is small and contains a limited number of competitors, with Align being a known pioneer with whom 3Shape has great familiarity. The companies have worked together in the past and 3Shape has had ample access to Align's technology. Upon information and belief, 3Shape knowingly developed and sold its competitive knockoff products in an infringing manner that was known to 3Shape or was so obvious that 3Shape should have known about this infringement.

**ANSWER:** Denied.

59. On information and belief, despite knowing that its actions constituted infringement of the '901 patent and/or despite knowing that that there was a high likelihood that its actions constituted infringement of the patent, 3Shape nevertheless continued its infringing actions, and continues to make, use and sell its infringing products.

**ANSWER:** Denied.

60. 3 Shape's acts of infringement have injured and damaged Align.

**ANSWER:** Denied.



### COUNT THREE - INFRINGEMENT OF THE '448 PATENT

61. Align incorporates by reference its allegations in Paragraphs 1-60 as if fully restated in this paragraph.

**ANSWER:** Defendants restate and reincorporate their response to paragraphs 1-60 as if fully set forth herein.

62. On information and belief, 3Shape has been and is now directly and/or indirectly infringing, literally and/or under the doctrine of equivalents, the '448 patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products covered by one or more of the claims of the '448 patent, including the TRIOS and TRIOS 3, as well as the related Dental System software products.

**ANSWER:** Denied.

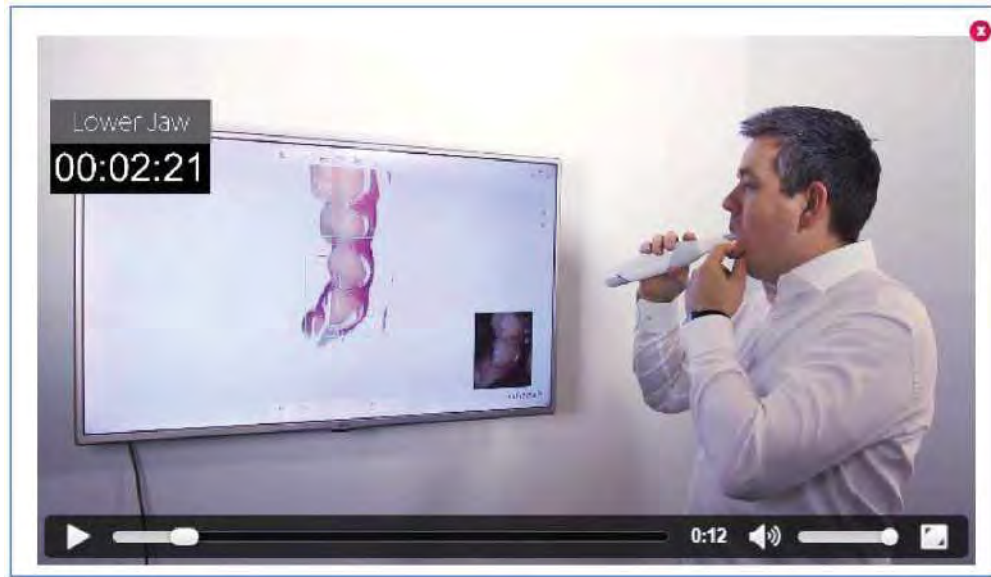
63. The '448 patent is generally directed to determining and imaging three-dimensional structures. Claim 1 of the '448 patent recites an apparatus for imaging at least a portion of a patient's dentition, the apparatus comprising: an illumination unit configured to transmit a parent light beam comprising a first wavelength component and a second wavelength component; an optical system configured to generate an illuminated region on a portion of a patient's dentition, wherein the first wavelength component is focused at a first focal plane and the second wavelength component is focused at a second focal plane; a translation mechanism configured to change the position of the first focal plane and the second focal plane at the same time; a detector unit configured to measure intensity of returned light beams of the first wavelength component and the second wavelength component; and a processor coupled to the detector unit and configured to determine a surface topology of the patient's dentition based at least in part on a first intensity of a first returned light beam of the first wavelength component and a second intensity of a second returned light beam of the second wavelength component.

**ANSWER:** Denied.

64. 3Shape's TRIOS, TRIOS 3, and/or the related Dental System software products, infringe at least claim 1 of the '448 patent. For example, 3Shape's TRIOS and TRIOS 3, used with the related Dental System software products, have an illumination unit configured to transmit a parent light beam comprising a first wavelength component and a second wavelength component; an optical system configured to generate an illuminated region on a portion of a patient's dentition, wherein the first wavelength component is focused at a first focal plane and the second wavelength component is focused at a second focal plane; a translation mechanism configured to change the position of the first focal plane and the second focal plane at the same time; a detector unit configured to measure intensity of returned light beams of the first wavelength component and the second wavelength component; and a processor coupled to the detector unit and configured to determine a surface topology of the patient's dentition based at least in part on a first intensity of a first returned light beam of the first wavelength component and a second intensity of a second returned light beam of the



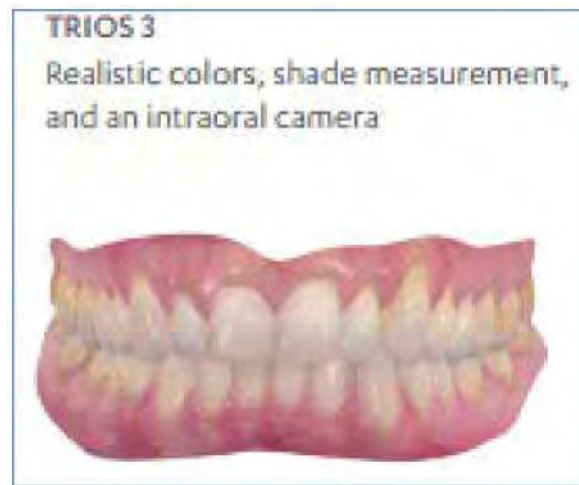
second wavelength component, as shown, for example, in the demonstration video, TRIOS brochure, and press release below.



(See, e.g., 3Shape TRIOS® Video (3Shape website, available at: <http://www.3shape.com/products/trios/intraoral-scanners#myModal>) (the specific version of the video screenshotted above may no longer be available on 3Shape's website).)



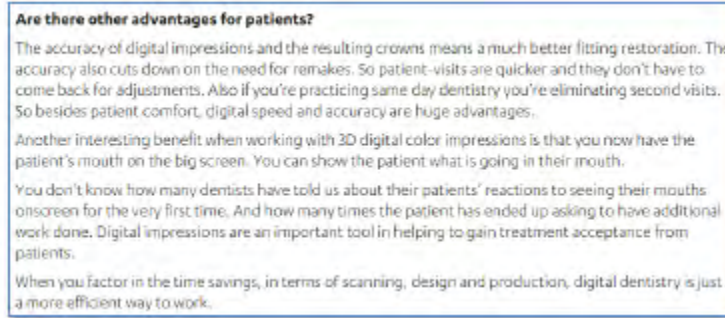
(See, e.g., 3Shape TRIOS® Digital Impression Solution Brochure (3Shape website, available at: <http://www.3shape.com/en/products/orthodontic-system/intraoral-scanner-orthodontics-software-myModal>).)



(Id.)



(Id.)



(See, e.g., 3Shape TRIOS® Knowledge Center (3Shape website, available at: <https://www.3shape.com/en/news/2015/why-your-patients-love-digital-technology>).)

**ANSWER:** Denied.

65. 3Shape possesses knowledge of and is aware of the '448 patent by virtue of, at a minimum, filing this Complaint and, on information and belief, had prior knowledge of the '448 patent by virtue of the prior business dealings between 3Shape and Align and other facts described above.

**ANSWER:** Denied.

66. 3Shape also has been and is now actively inducing infringement of one or more claims of the '448 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

67. On information and belief, 3Shape A/S alone and/or acting in concert with, directing and/or authorizing 3Shape US to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others. On information and belief, 3Shape A/S induces 3Shape US to infringe.

**ANSWER:** Denied.

68. On information and belief, 3Shape US alone and/or acting in concert with, directing and/or authorizing 3Shape A/S to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others.

**ANSWER:** Denied.

69. 3Shape has intended, and continues to intend to induce infringement of the '448 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, 3Shape is aware that the features claimed in the '448 patent are features in the TRIOS, TRIOS 3, and/or the related Dental System software products and are

features used by others that purchase TRIOS, TRIOS 3, and/or the related Dental System software products and, therefore, that purchasers and end users will infringe the '448 patent by using the TRIOS, TRIOS 3, and/or the related Dental System software products. 3Shape actively induces infringement of the '448 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the TRIOS, TRIOS 3, and/or the related Dental System software products and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides, and technical information (including but not limited to the demonstration video, brochure, and press release described in this Count of the Complaint) to others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products. Those third parties directly infringe the '448 patent by making, using, selling, offering for sale, and/or importing the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

70. 3Shape also has been and is now contributing to the infringement of one or more claims of the '448 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

71. 3Shape has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the '448 patent by having sold or offered to sell and continuing to sell or offer for sale the TRIOS, TRIOS 3, and/or the related Dental System software products within in the United States and/or by importing the TRIOS, TRIOS 3, and/or the related Dental System software products into the United States, with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is especially made and/or especially adapted for use in infringement of the '448 patent. 3Shape has contributed to the infringement by others with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is a material part of the patented invention, and with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products, infringe and will continue to infringe the '448 patent because, due to their specific designs, the accused products and components thereof do not have any substantial non-infringing uses. 3Shape has such knowledge at least because the claimed features of the '448 patent are used by others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

72. On information and belief, 3Shape knew or should have known of the '448 patent and has acted, and continues to act, in an egregious and wanton manner by infringing '448

patent. On information and belief, 3Shape's infringement of the '448 patent has been and continues to be willful and deliberate. The market for intraoral scanners and related dental and orthodontic software products is small and contains a limited number of competitors, with Align being a known pioneer with whom 3Shape has great familiarity. The companies have worked together in the past and 3Shape has had ample access to Align's technology. Upon information and belief, 3Shape knowingly developed and sold its competitive knockoff products in an infringing manner that was known to 3Shape or was so obvious that 3Shape should have known about this infringement.

**ANSWER:** Denied.

73. On information and belief, despite knowing that its actions constituted infringement of the '448 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the patent, 3Shape nevertheless continued its infringing actions, and continues to make, use and sell its infringing products.

**ANSWER:** Denied.

74. 3Shape's acts of infringement have injured and damaged Align.

**ANSWER:** Denied.

#### **COUNT FOUR - INFRINGEMENT OF THE '447 PATENT**

75. Align incorporates by reference its allegations in Paragraphs 1-74 as if fully restated in this paragraph.

**ANSWER:** Defendants restate and reincorporate their response to paragraphs 1-74 as if fully set forth herein

76. On information and belief, 3Shape has been and is now directly and indirectly infringing, literally and/or under the doctrine of equivalents, the '447 patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products covered by one or more of the claims of the '447 patent, including the TRIOS and TRIOS 3, as well as the related Dental System software products.

**ANSWER:** Denied.

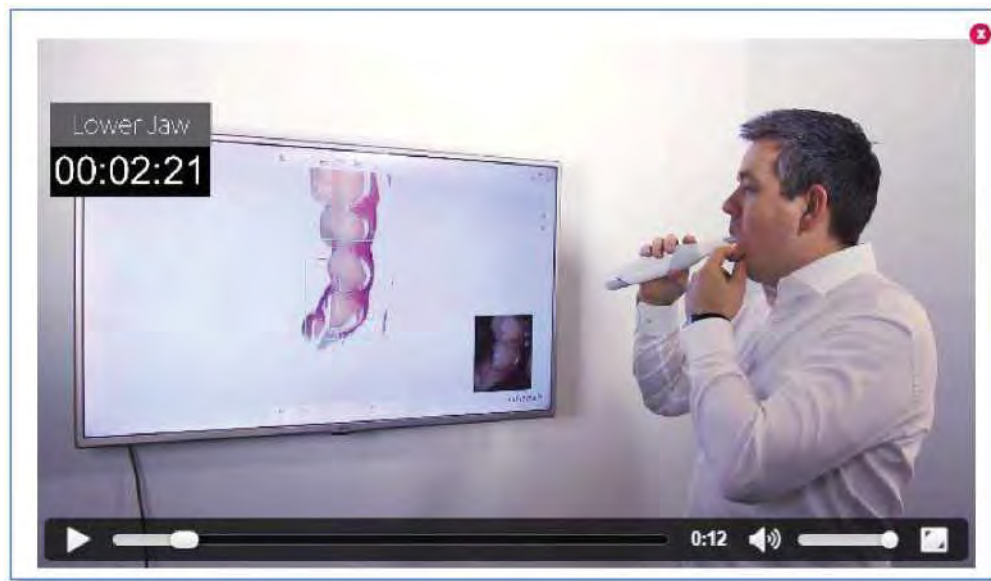
77. The '447 patent is generally directed to determining and imaging three-dimensional structures. Claim 1 of the '447 patent recites an apparatus for imaging at least a portion of a patient's dentition, the apparatus comprising: an illumination unit configured to transmit a parent light beam comprising a first wavelength component and a second wavelength component; an illumination unit configured to transmit a parent light beam comprising a first wavelength component and a second wavelength component; a translation mechanism configured to move the position of the first focal plane and the second focal plane at the same time over a range of focal plane positions; a detector unit configured to measure



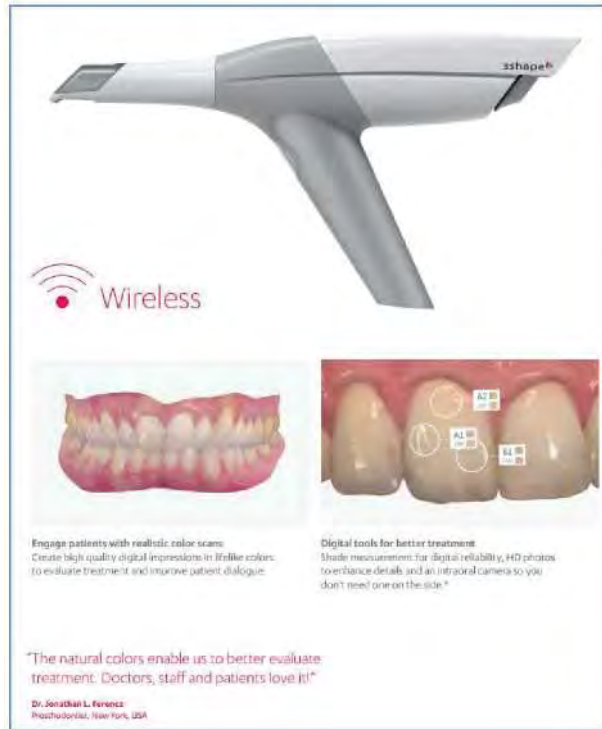
intensity of returned light beams of the first wavelength component and the second wavelength component; and a processor coupled to the detector unit and configured to determine a surface topology of the patient's dentition based at least in part on a first intensity of a first returned light beam of the first wavelength component and a second intensity of a second returned light beam of the second wavelength component.

**ANSWER:** Denied.

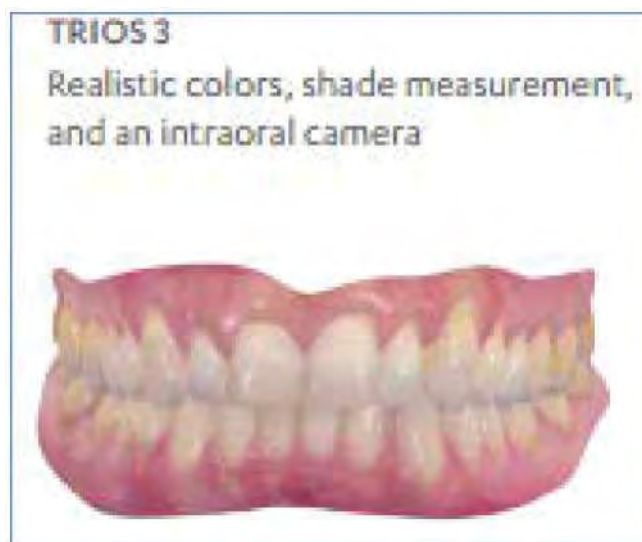
78. 3Shape's TRIOS, TRIOS 3, and/or the related Dental System software products, infringe at least claim 1 of the '447 patent. For example, 3Shape's TRIOS and TRIOS 3, used with the related Dental System software products, have an illumination unit configured to transmit a parent light beam comprising a first wavelength component and a second wavelength component; an illumination unit configured to transmit a parent light beam comprising a first wavelength component and a second wavelength component; a translation mechanism configured to move the position of the first focal plane and the second focal plane at the same time over a range of focal plane positions; a detector unit configured to measure intensity of returned light beams of the first wavelength component and the second wavelength component; and a processor coupled to the detector unit and configured to determine a surface topology of the patient's dentition based at least in part on a first intensity of a first returned light beam of the first wavelength component and a second intensity of a second returned light beam of the second wavelength component, as shown, for example, in the demonstration video, TRIOS brochure, and press release below.



(See, e.g., 3Shape TRIOS® Video (3Shape website, available at: <http://www.3shape.com/products/trios/intraoral-scanners#myModal>) (the specific version of the video screenshotted above may no longer be available on 3Shape's website).)



(See, e.g., 3Shape TRIOS® Digital Impression Solution Brochure (3Shape website, available at: <http://www.3shape.com/en/products/orthodontic-system/intraoral-scanner-orthodontics-software-myModal>).)



(Id.)





(Id.)



(See, e.g., 3Shape TRIOS® Knowledge Center (3Shape website, available at: <https://www.3shape.com/en/news/2015/why-your-patients-love-digital-technology>).)

**ANSWER:** Denied.

79. 3Shape possesses knowledge of and is aware of the '447 patent by virtue of, at a minimum, filing this Complaint and, on information and belief, had prior knowledge of the '447 patent by virtue of the prior business dealings between 3Shape and Align and other facts described above.

**ANSWER:** Denied.

80. 3Shape also has been and is now actively inducing infringement of one or more claims of the '447 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

81. On information and belief, 3Shape A/S alone and/or acting in concert with, directing and/or authorizing 3Shape US to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others. On information and belief, 3Shape A/S induces 3Shape US to infringe.

**ANSWER:** Denied.

82. On information and belief, 3Shape US alone and/or acting in concert with, directing and/or authorizing 3Shape A/S to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others.

**ANSWER:** Denied.

83. 3Shape has intended, and continues to intend to induce infringement of the '447 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, 3Shape is aware that the features claimed in the '447 patent are features in the TRIOS, TRIOS 3, and/or the related Dental System software products and are features used by others that purchase TRIOS, TRIOS 3, and/or Dental System and, therefore, that purchasers and end users will infringe the '447 patent by using the TRIOS, TRIOS 3, and/or the related Dental System software products. 3Shape actively induces infringement of the '447 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the TRIOS, TRIOS 3, and/or the related Dental System software products and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides, and technical information (including but not limited to the demonstration video, brochure, and press release described in this Count of the Complaint) to others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products. Those third parties directly infringe the '447 patent by making, using, selling, offering for sale, and/or importing the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

84. 3Shape also has been and is now contributing to the infringement of one or more claims of the '447 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

85. 3Shape has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the '447 patent by having sold or offered to sell and continuing to sell or offer for sale the TRIOS, TRIOS 3, and/or the related Dental System software products within in the United States and/or by importing the TRIOS, TRIOS 3, and/or the related Dental System software products into the United States, with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or

the related Dental System software products is especially made and/or especially adapted for use in infringement of the '447 patent. 3Shape has contributed to the infringement by others with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is a material part of the patented invention, and with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products, infringe and will continue to infringe the '447 patent because, due to their specific designs, the accused products and components thereof do not have any substantial non-infringing uses. 3Shape has such knowledge at least because the claimed features of the '447 patent are used by others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

86. On information and belief, 3Shape knew or should have known of the '447 patent and has acted, and continues to act, in an egregious and wanton manner by infringing '447 patent. On information and belief, 3Shape's infringement of the '447 patent has been and continues to be willful and deliberate. The market for intraoral scanners and related dental and orthodontic software products is small and contains a limited number of competitors, with Align being a known pioneer with whom 3Shape has great familiarity. The companies have worked together in the past and 3Shape has had ample access to Align's technology. Upon information and belief, 3Shape knowingly developed and sold its competitive knockoff products in an infringing manner that was known to 3Shape or was so obvious that 3Shape should have known about this infringement.

**ANSWER:** Denied.

87. On information and belief, despite knowing that its actions constituted infringement of the '447 patent and/or despite knowing that there was a high likelihood that its actions constituted infringement of the patent, 3Shape nevertheless continued its infringing actions, and continues to make, use and sell its infringing products.

**ANSWER:** Denied.

88. 3Shape's acts of infringement have injured and damaged Align.

**ANSWER:** Denied.

#### **COUNT FIVE - INFRINGEMENT OF THE '175 PATENT**

89. Align incorporates by reference its allegations in Paragraphs 1-88 as if fully restated in this paragraph.

**ANSWER:** Defendants restate and reincorporate their response to paragraphs 1-88 as if fully set forth herein.

90. On information and belief, 3Shape has been and is now directly and indirectly infringing, literally and/or under the doctrine of equivalents, the '175 patent by making, using, selling, offering for sale, and/or importing into the United States products covered by one or more of the claims of the '175 patent, including the TRIOS and TRIOS 3, as well as the related Dental System software products.

**ANSWER:** Denied.

91. The '175 patent is generally directed to providing a method and system in which information and data available from one type of teeth imaging technique is transferred and used in an image obtained by another kind of teeth imaging technique. Claim 14 of the '175 patent recites an image processing system comprising: a first input utility for receipt of first data representative of a first two-dimensional cross-sectional image of at least a first teeth portion; a second input utility for receipt of second data representative of a second, three-dimensional virtual image of teeth model of at least a second teeth portion; a module for defining basic landmarks in both images and for generating data representative thereof; and a processor associated with said first and said second input utility and with said module, for receiving said first and said second data and for mapping elements in one of the two images to the other of the two images according to the data representative of said basic landmarks.

**ANSWER:** Denied.

92. 3Shape's TRIOS, TRIOS 3, and/or the related Dental System software products, infringe at least claim 14 of the '175 patent. For example, 3Shape's TRIOS and TRIOS 3, used with the related Dental System software products, have a first input utility for receipt of first data representative of a first two-dimensional cross-sectional image of at least a first teeth portion; a second input utility for receipt of second data representative of a second, three-dimensional virtual image of teeth model of at least a second teeth portion; a module for defining basic landmarks in both images and for generating data representative thereof; and a processor associated with said first and said second input utility and with said module, for receiving said first and said second data and for mapping elements in one of the two images to the other of the two images according to the data representative of said basic landmarks, as shown, for example, in the marketing materials and videos below.



(See, e.g., 3Shape marketing material (3Shape website, available at: <https://www.3shape.com/en/software/ortho-system#myModal>).)



(See e.g., 3Shape marketing video (3Shape website, available at: <https://www.3shape.com/en/software/ortho-system#myModal>).)



(Id.)





(Id.)



(Id.)



(Id.)



## Combine 2D Images with 3D models

Patient photographs, X-Ray panoramics,  
ceph tracing.

(See, e.g., 3Shape marketing material (3Shape website, available at: <https://www.3shape.com/en/software/ortho-system#myModal>).



(See, e.g., 3Shape Dental System 2014 User Manual at Chapter 2.2, available at <https://3shape.widen.net/view/pdf/owrhsyt18z/Dental-System-User-Manual-2.9.9.4-B-EN.pdf?t.download=true&u=6xmdhr>).





3Shape RealView™ Engine - Next Generation 3D Digital Smile Design

13,428 views

(See, e.g., 3Shape marketing video (3Shape YouTube channel, available at: <https://www.youtube.com/watch?v=kePJSttidLU>.)



3Shape RealView™ Engine - Next Generation 3D Digital Smile Design

13,428 views

(*Id.*)



3Shape RealView™ Engine - Next Generation 3D Digital Smile Design

13,428 views

(*Id.*)

**ANSWER:** Denied.

93. 3Shape possesses knowledge of and is aware of the '175 patent by virtue of, at a minimum, filing this Complaint and, on information and belief, had prior knowledge of the '175 patent by virtue of the prior business dealings between 3Shape and Align and other facts described above.

**ANSWER:** Denied.

94. 3Shape also has been and is now actively inducing infringement of one or more claims of the '175 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

95. On information and belief, 3Shape A/S alone and/or acting in concert with, directing and/or authorizing 3Shape US to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others. On information and belief, 3Shape A/S induces 3Shape US to infringe.

**ANSWER:** Denied.

96. On information and belief, 3Shape US alone and/or acting in concert with, directing and/or authorizing 3Shape A/S to make, use, sell or offer for sale in the United States or import into the United States the TRIOS, TRIOS 3, and/or the related Dental System software products, possesses an affirmative intent to actively induce infringement by others.

**ANSWER:** Denied.

97. 3Shape has intended, and continues to intend to induce infringement of the '175 patent by others and has knowledge, with specific intent, that the inducing acts would cause infringement or has been willfully blind to the possibility that its inducing acts would cause the infringing acts. For example, 3Shape is aware that the features claimed in the '175 patent are features in the TRIOS, TRIOS 3, and/or the related Dental System software products and are features used by others that purchase TRIOS, TRIOS 3, and/or the related Dental System software products and, therefore, that purchasers and end users will infringe the '175 patent by using the TRIOS, TRIOS 3, and/or the related Dental System software products. 3Shape actively induces infringement of the '175 patent with knowledge and the specific intent to encourage that infringement by, *inter alia*, disseminating the TRIOS, TRIOS 3, and/or the related Dental System software products and providing promotional materials, marketing materials, training materials, instructions, product manuals, user guides, and technical information (including but not limited to the marketing materials and videos described in this Count of the Complaint) to others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products. Those third parties directly infringe the '175 patent by making, using, selling, offering for sale, and/or importing the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

98. 3Shape also has been and is now contributing to the infringement of one or more claims of the '175 patent, either literally or under the doctrine of equivalents.

**ANSWER:** Denied.

99. 3Shape has actively, knowingly, and intentionally contributed and continues to actively, knowingly, and intentionally contribute to the infringement of the '175 patent by having sold or offered to sell and continuing to sell or offer for sale the TRIOS, TRIOS 3, and/or the related Dental System software products within in the United States and/or by importing the TRIOS, TRIOS 3, and/or the related Dental System software products into the United States, with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is especially made and/or especially adapted for use in infringement of the '175 patent. 3Shape has contributed to the infringement by others with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is a material part of the patented invention, and with knowledge that the infringing technology in the TRIOS, TRIOS 3, and/or the related Dental System software products is not a staple article of commerce suitable for substantial non-infringing use, and with knowledge that others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products, infringe and will continue to infringe the '175 patent because, due to their specific designs, the accused products and components thereof do not have any substantial non-infringing uses. 3Shape has such knowledge at least because the claimed features of the '175 patent are used by others including, but not limited to, resellers, distributors, customers, dentists, orthodontists, dental and orthodontic labs, and/or other end users of the TRIOS, TRIOS 3, and/or the related Dental System software products.

**ANSWER:** Denied.

100. On information and belief, 3Shape knew or should have known of the '175 patent and has acted, and continues to act, in an egregious and wanton manner by infringing '175 patent. On information and belief, 3Shape's infringement of the '175 patent has been and continues to be willful and deliberate. The market for intraoral scanners and related dental and orthodontic software products is small and contains a limited number of competitors, with Align being a known pioneer with whom 3Shape has great familiarity. The companies have worked together in the past and 3Shape has had ample access to Align's technology. Upon information and belief, 3Shape knowingly developed and sold its competitive knockoff products in an infringing manner that was known to 3Shape or was so obvious that 3Shape should have known about this infringement.

**ANSWER:** Denied.

101. On information and belief, despite knowing that its actions constituted infringement of the '175 patent and/or despite knowing that that there was a high likelihood that its actions constituted infringement of the patent, 3Shape nevertheless continued its infringing actions, and continues to make, use and sell its infringing products.

**ANSWER:** Denied.

102. 3Shape's acts of infringement have injured and damaged Align.

**ANSWER:** Denied.

103. 3Shape's wrongful conduct has caused Align to suffer irreparable harm resulting from the loss of its lawful patent rights to exclude others from making, using, selling, offering to sell and importing the patented inventions. Upon information and belief, 3Shape will continue these infringing acts unless enjoined by this Court.

**ANSWER:** Denied.

### **PRAYER FOR RELIEF**

Defendants deny that Plaintiff is entitled to any of the relief requested by the Complaint, or any other remedy or relief whatsoever.

### **AFFIRMATIVE DEFENSES**

Without any admission as to burden of proof, burden of persuasion, or the truth of any of the allegations in Plaintiff's Complaint, Defendants state the following affirmative defenses. Defendants reserve the right to assert additional defenses, as warranted by the facts learned through investigation and discovery.

#### **First Affirmative Defense** **(Invalidity and/or Unenforceability of U.S. Patent No. 7,092,107)**

One or more claims of the '107 patent are invalid and/or unenforceable for failure to comply with one or more of the requirements for patentability set forth in Title 35 of the U.S. Code, including §§ 101, 102, 103, 112, and 116 and/or invalid under any other ground provided by 35 U.S.C. § 282, and/or based on other judicially-created bases for invalidity.

#### **Second Affirmative Defense** **(Non-Infringement of U.S. Patent No. 7,092,107)**

Plaintiff has failed to aver any facts that support its allegations of infringement by the accused products. The accused products will not infringe any valid and enforceable claim of the '107 patent, either literally or under the doctrine of equivalents.

**Third Affirmative Defense**  
**(Invalidity and/or Unenforceability of U.S. Patent No. 9,615,901)**

One or more claims of the '901 patent are invalid and/or unenforceable for failure to comply with one or more of the requirements for patentability set forth in Title 35 of the U.S. Code, including §§ 101, 102, 103, 112, and 116 and/or invalid under any other ground provided by 35 U.S.C. § 282, and/or based on other judicially-created bases for invalidity.

**Fourth Affirmative Defense**  
**(Non-Infringement of U.S. Patent No. 9,615,901)**

Plaintiff has failed to aver any facts that support its allegations of infringement by the accused products. The accused products will not infringe any valid and enforceable claim of the '901 patent, either literally or under the doctrine of equivalents.

**Fifth Affirmative Defense**  
**(Invalidity and/or Unenforceability of U.S. Patent No. 8,638,448)**

One or more claims of the '448 patent are invalid and/or unenforceable for failure to comply with one or more of the requirements for patentability set forth in Title 35 of the U.S. Code, including §§ 101, 102, 103, 112, and 116 and/or invalid under any other ground provided by 35 U.S.C. § 282, and/or based on other judicially-created bases for invalidity.

**Sixth Affirmative Defense**  
**(Non-Infringement of U.S. Patent No. 8,638,448)**

Plaintiff has failed to aver any facts that support its allegations of infringement by the accused products. The accused products will not infringe any valid and enforceable claim of the '448 patent, either literally or under the doctrine of equivalents.

**Seventh Affirmative Defense**  
**(Invalidity and/or Unenforceability of U.S. Patent No. 8,638,447)**

One or more claims of the '447 patent are invalid and/or unenforceable for failure to comply with one or more of the requirements for patentability set forth in Title 35 of the U.S. Code, including §§ 101, 102, 103, 112, and 116 and/or invalid under any other ground provided by 35 U.S.C. § 282, and/or based on other judicially-created bases for invalidity.

**Eighth Affirmative Defense**  
**(Non-Infringement of U.S. Patent No. 8,638,447)**

Plaintiff has failed to aver any facts that support its allegations of infringement by the accused products. The accused products will not infringe any valid and enforceable claim of the '447 patent, either literally or under the doctrine of equivalents.

**Ninth Affirmative Defense**  
**(Invalidity and/or Unenforceability of U.S. Patent No. 6,845,175)**

One or more claims of the '175 patent are invalid and/or unenforceable for failure to comply with one or more of the requirements for patentability set forth in Title 35 of the U.S. Code, including §§ 101, 102, 103, 112, and 116 and/or invalid under any other ground provided by 35 U.S.C. § 282, and/or based on other judicially-created bases for invalidity.

**Tenth Affirmative Defense**  
**(Non-Infringement of U.S. Patent No. 6,845,175)**

Plaintiff has failed to aver any facts that support its allegations of infringement by the accused products. The accused products will not infringe any valid and enforceable claim of the '175 patent, either literally or under the doctrine of equivalents.

**Eleventh Affirmative Defense**  
**(Prosecution History Estoppel)**



Plaintiff is estopped from arguing and have waived arguments that the claims of the ‘107, ‘901, ‘448, ‘447, and the ‘175 patents cover the products described by virtue of amendments, positions, and arguments made to the USPTO when obtaining the asserted patents.

**Twelfth Affirmative Defense**  
**(Failure to State a Claim)**

Plaintiff’s Complaint fails to state a claim upon which relief can be granted.

**Fourteenth Affirmative Defense**  
**(Lack of Standing)**

Plaintiff do not have standing to assert claims for patent infringement under 35 U.S.C. § 271(a), (b), and (c).

**Fifteenth Affirmative Defense**  
**(Equitable Estoppel, Laches, Waiver, Acquiescence, and/or Unclean Hands)**

Plaintiff’s claims for relief are barred by the doctrines of waiver, laches, acquiescence, unclean hands, and/or estoppel with respect to asserted claims of the ‘107, ‘901, ‘448, ‘447, and ‘175 patents because Plaintiff misled 3Shape as to its intent not to enforce these patents against 3Shape after it learned, or through reasonable diligence should have learned, of its causes of action against 3Shape, and since such time 3Shape has expended substantial amounts of time, money, and effort to build its business, brand and recognition of its name and products.

**Sixteenth Affirmative Defense**  
**(Covenant Not to Sue)**

Plaintiff has covenanted not to sue 3Shape on the asserted patents.

**Seventeenth Affirmative Defense**  
**(License)**

Plaintiff’s claims for relief are barred with respect to asserted claims of the ‘107, ‘901, ‘448, ‘447, and ‘175 patents to the extent the accused 3Shape products are expressly or impliedly licensed under these patents.

**Eighteenth Affirmative Defense**  
**(Patent Misuse)**

Plaintiff's claims are barred, in whole or in part, by the doctrine of patent misuse.

**Nineteenth Affirmative Defense**  
**(Limitations on Damages)**

Plaintiff is not entitled to damages on the sale of TRIOS and TRIOS 3 scanners as Plaintiff has represented that the patents-in-suit are applicable to software and not hardware.

**Twentieth Affirmative Defense**  
**(Additional Defenses or Counterclaims)**

Defendants reserve all defenses available under the Federal Rules of Civil Procedure and the U.S. Patent laws and any additional defenses or counterclaims that discovery may reveal including that Plaintiff has failed to aver any facts supporting the conclusion that they have suffered any irreparable injury or harm under 35 U.S.C. § 283, and that Plaintiff has failed to aver any facts supporting that this is an exceptional case and/or an award of attorney's fees under 35 U.S.C. § 285.

WHEREFORE, Defendants request that Plaintiff's Complaint be dismissed with prejudice and that Defendants be awarded the costs of this action, its attorneys' fees, and all other relief that this Court deems just and proper.

**COUNTERCLAIMS**

For their counterclaims against Counterclaim-Defendant Align Technology, Inc. ("Counterclaim-Defendant" or "Align"), Counterclaim-Plaintiffs 3Shape A/S, 3Shape Trios A/S, and 3Shape, Inc. (collectively "Counterclaim-Plaintiffs" or "3Shape"), state as follows:

**PARTIES**

1. Counterclaim-Plaintiff 3Shape A/S ("3Shape A/S") is a Danish corporation with principal place of business at Holmens Kanal 7, 1060 Copenhagen K, Denmark.

2. Counterclaim-Plaintiff 3Shape Trios A/S (“3Shape Trios A/S”) is a Danish corporation with principal place of business at Holmens Kanal 7, 1060 Copenhagen K, Denmark.

3. Counter-claim Plaintiff 3Shape Inc. (“3Shape US”) is a Delaware corporation with a principal place of business at 10 Independence Boulevard, Suite 150, Warren, New Jersey 07059.

4. On information and belief, Counterclaim-Defendant Align Technology Inc. (“Align”) is a Delaware corporation with its principal place of business in San Jose, California.

### **JURISDICTION AND VENUE**

5. Counterclaim-Plaintiffs’ counterclaims arise under the Patent Laws of the United States, 35 U.S.C. § 1 et seq. and the Declaratory Judgment Act, 28 U.S.C. §§ 2201 and 2202.

6. This Court has original jurisdiction over the subject matter of these counterclaims pursuant to 28 U.S.C. §§ 1331, 1338, 2201, and 2202.

7. This Court has personal jurisdiction over Counterclaim-Defendant because Counterclaim-Defendant has availed itself of the rights and privileges of this forum by bringing this civil action in this judicial district and because, on information and belief, Counterclaim-Defendant conducts substantial business in, and has regular and systematic contact with, this judicial district.

8. Venue for these counterclaims is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b).

### **FACTUAL BACKGROUND**

9. 3Shape is a pioneer developer of dental equipment and software for use by dental professionals and laboratories since 2004. In particular, 3Shape Trios A/S, a sister company of 3Shape A/S, designs, develops, manufactures, and sells Trios, the first color wireless intraoral

full mouth scanner in the industry, and related software products. The Trios system can be used for scanning, designing, and ordering of clear aligners and a number of other orthodontic treatments or dental products.

10. Trios has been named the best intraoral scanner by the industry for five years in a row. Trios was also named the most accurate intraoral scanner in an independent American Dental Association study.

11. Trios has numerous operational advantages for dental professionals as well. The most important is that Trios is an open system scanner, integrated with many different providers of restorative products and orthodontic treatments. Dental professionals can send scans directly from Trios to any provider that accepts STL files, the open industry standard file format. Trios's open system provides patients and dental professionals freedom of choice and access to an open market for dental and orthodontic treatments.

12. On or about December 31, 2015, Align and 3Shape Trios A/S entered into a contract ("the Scanner Agreement") to promote interoperability between 3Shape's Trios and Trios 3 intraoral scanners and related software and technology and Align's Invisalign clear aligner workflows.

13. Align purported to terminate the Scanner Agreement in December 2017.

14. Align purported to close the technical interoperability between Trios and Invisalign for new cases in the U.S. only in January of 2018.

(<http://investor.aligntech.com/static-files/c58144fd-bf1f-404a-91ff-32416d39af83>.)

15. Trios and Trios 3 users outside the U.S. can still send scans to Invisalign to this day.

16. The accused Trios, Trios 3, and Dental System software do not infringe any valid claim of any Align asserted patent, including the '107, '901, '448, '447, and '175 patents.

17. Each of the patents-in-suit is invalid.

**COUNT I**

**(Declaratory Judgment of Invalidity and/or Unenforceability of the '107 Patent)**

18. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-17 of the Counterclaims as if fully set forth herein.

19. 3Shape is entitled to a declaration that the asserted claims of the '107 patent are invalid and/or unenforceable pursuant to at least 35 U.S.C. §§ 101, 102, 103, 112, and 116.

**COUNT II**

**(Declaratory Judgment of Non-Infringement of the '107 Patent)**

20. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-19 of the Counterclaims as if fully set forth herein.

21. 3Shape is entitled to a declaration that it does not infringe the asserted claims of the '107 patent.

**COUNT III**

**(Declaratory Judgment of Invalidity and/or Unenforceability of the '901 Patent)**

22. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-21 of the Counterclaims as if fully set forth herein.

23. 3Shape is entitled to a declaration that the asserted claims of the '901 patent are invalid and/or unenforceable pursuant to at least 35 U.S.C. §§ 101, 102, 103, 112, and 116.

**COUNT IV**

**(Declaratory Judgment of Non-Infringement of the '901 Patent)**

24. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-23 of the Counterclaims as if fully set forth herein.

25. 3Shape is entitled to a declaration that it does not infringe the asserted claims of the '901 patent.

**COUNT V**  
**(Declaratory Judgment of Invalidity and/or Unenforceability of the '448 Patent)**

26. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-25 of the Counterclaims as if fully set forth herein.

27. 3Shape is entitled to a declaration that the asserted claims of the '264 patent are invalid and/or unenforceable pursuant to at least 35 U.S.C. §§ 101, 102, 103, 112, and 116.

**COUNT VI**  
**(Declaratory Judgment of Non-Infringement of the '448 Patent)**

28. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-27 of the Counterclaims as if fully set forth herein.

29. 3Shape is entitled to a declaration that it does not infringe the asserted claims of the '448 patent.

**COUNT VII**  
**(Declaratory Judgment of Invalidity and/or Unenforceability of the '447 Patent)**

30. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-29 of the Counterclaims as if fully set forth herein.

31. 3Shape is entitled to a declaration that the asserted claims of the '447 patent are invalid and/or unenforceable pursuant to at least 35 U.S.C. §§ 101, 102, 103, 112, and 116.

**COUNT VIII**  
**(Declaratory Judgment of Non-Infringement of the '447 Patent)**

32. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-31 of the Counterclaims as if fully set forth herein.



33. 3Shape is entitled to a declaration that it does not infringe the asserted claims of the '447 patent.

**COUNT IX**  
**(Declaratory Judgment of Invalidity and/or Unenforceability of the '175 Patent)**

34. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-33 of the Counterclaims as if fully set forth herein.

35. 3Shape is entitled to a declaration that the asserted claims of the '175 patent are invalid and/or unenforceable pursuant to at least 35 U.S.C. §§ 101, 102, 103, 112, and 116.

**COUNT X**  
**(Declaratory Judgment of Non-Infringement of the '175 Patent)**

36. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-35 of the Counterclaims as if fully set forth herein.

37. 3Shape is entitled to a declaration that it does not infringe the asserted claims of the '175 patent.

**COUNT XIII**  
**(Unjust Enrichment)**

38. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-37 of the Counterclaims as if fully set forth herein.

39. 3Shape conferred a benefit on Align by allowing interoperability between 3Shape's Trios intraoral scanner and Align's Invisalign workflow.

40. Align accepted and unjustly retained this benefit, and exploited this benefit to gain access to 3Shape's Trios and end user's information without 3Shape's permission.

41. Align has been and continues to be unjustly enriched by its wrongful conduct. For example, Align has made wrongful use of 3Shape's end user information and has derived an unjust benefit from commercially exploiting this information to 3Shape's detriment.

**COUNT XIV**

**(Common Law Tortious Interference with Prospective Business Relations)**

42. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-41 of the Counterclaims as if fully set forth herein.

43. 3Shape had a reasonable probability and expectancy of retaining its Trios customers.

44. On information and belief, using confidential information obtained during the Trios to Invisalign interface, Align identified Trios owners and intentionally and wrongfully interfered with 3Shape's business relationships by targeting and offering 3Shape's customers significant discounts on Align's iTero scanner, with the intent to poach 3Shape customers.

45. By virtue of Align's tortious interference, at least some Trios owners purchased iTero, causing 3Shape both monetary and non-monetary damages.

**COUNT XV**

**(Unfair Competition)**

46. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-45 of the Counterclaims as if set forth fully herein.

47. 3Shape had a reasonable probability and expectancy of retaining its Trios customers.

48. On information and belief, using confidential information obtained during the Trios to Invisalign interface, Align identified Trios owners and intentionally and wrongfully interfered with 3Shape's business relationships by targeting and offering 3Shape's customers significant discounts on Align's iTero scanner with the intent to poach 3Shape customers.

49. By virtue of Align's tortious interference, at least some Trios owners purchased iTero, causing 3Shape both monetary and non-monetary damages.

50. Align's actions constitute common law unfair competition.

51. Align's acts have caused irreparable injury and damage to 3Shape for which 3Shape has no adequate remedy at law.

**COUNT XVI**  
**(Breach of Contract)**

52. Counterclaim-Plaintiffs restate and reallege each of the foregoing paragraphs 1-51 of the Counterclaims as if set forth fully herein.

53. Align and 3Shape Trios A/S entered into the Scanner Agreement on December 31, 2015.

54. The Scanner Agreement was a valid and legally binding contract between Align and 3Shape Trios A/S.

55. The Scanner Agreement identifies Counterclaim-Plaintiff 3Shape Trios A/S as the "Supplier." (Exhibit A at 1.)

56. The Scanner Agreement identifies Counterclaim-Defendant Align Technology, Inc. as "Align." (Exhibit A at 1.)

57. Section 1.1 of the Scanner Agreement states:

[REDACTED]

(Exhibit A at § 1.1.)


58. Section 1.9 of the Scanner Agreement states:

[REDACTED]

(Exhibit A at § 1.9.)

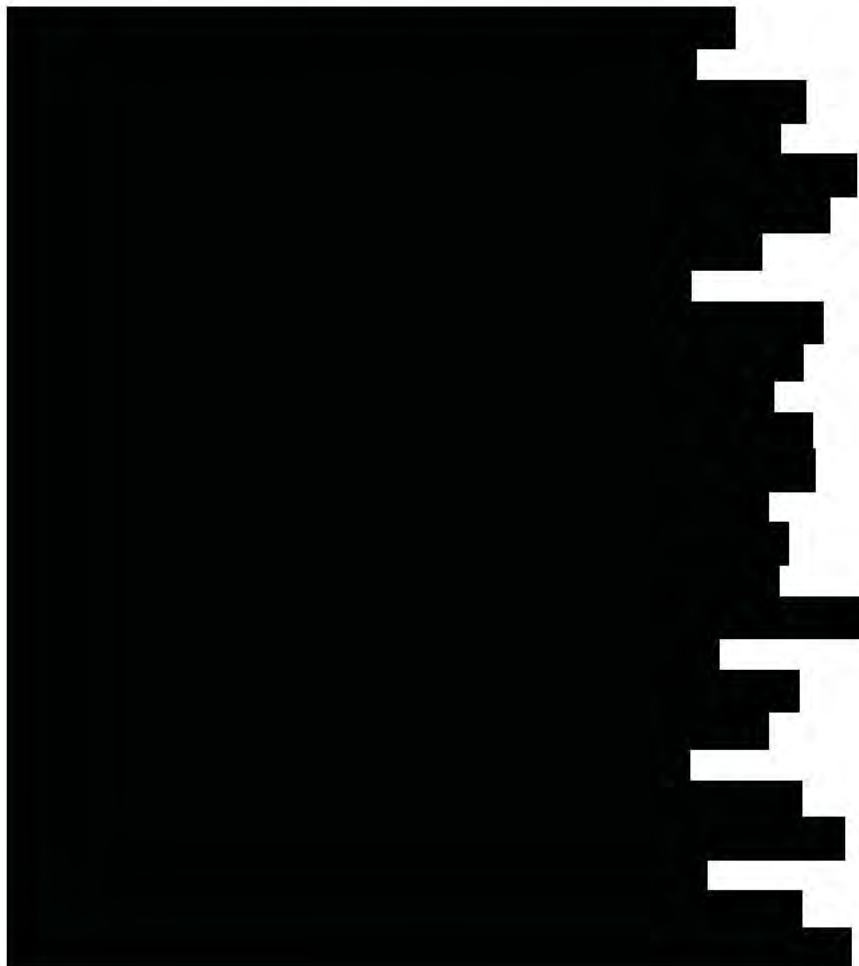
59. Section 3 of the Scanner Agreement is entitled “Confidentiality.”

60. Section 3.1 of the Scanner Agreement states, in part:

A large rectangular area of text is completely redacted with black ink.

(Exhibit A at § 3.1.)

61. Section 3.1 of the Scanner Agreement defines “Confidential Information” as:

A large rectangular area of text is completely redacted with black ink.

[REDACTED]

(Exhibit A at § 3.1.)

62. Section 3.4 of the Scanner Agreement is entitled [REDACTED] (Exhibit A at 3.4.)

63. Section 3.4 of the Scanner Agreement states:

[REDACTED]

(Exhibit A at § 3.4).

64. Section 3.6 of the Scanner Agreement states:

[REDACTED]

(Exhibit A at § 3.6.)

65. Align was able to identify 3Shape Trios users who submitted intraoral scans for Invisalign cases using their Trios scanners.

66. During the hearing in *Certain Intraoral Scanners and Related Hardware and Software*, Inv. No. 337-TA-1090 (U.S.I.T.C.) (the “1090 Investigation”), Align’s then-Chief Marketing Officer, Raphael Pascaud, testified under oath that Align can track “which scanner is performing the scan that’s going to be used in an Invisalign case.” (Ex. B at 1084:24-25; 1085:1.)

67. Align used Trios scan file(s) to identify 3Shape Trios users who submitted Invisalign cases.

68. Align's then-Vice President of Global Marketing and Education for iTero, Kerri Kling, testified under oath, during her October 10, 2019 deposition in *Align Technology Inc. v. 3Shape A/S et. al*, 1:17-cv-01646 (D. Del.) and *Align Technology Inc. v. 3Shape A/S et. al*, 1:17-cv-01647 (D. Del.), as follows:

[REDACTED]

[REDACTED]

(Ex. C at 223:3-8.)

69. Align improperly used 3Shape's Confidential Information. (Exs. A, B, C, D, E, F, G, H, I, J, K, L, M, N, O.)

70. Align improperly disclosed 3Shape's Confidential Information as defined by the Scanner Agreement. (Exs. A, B, C, D, E, F, G, H, I, J, K, L, M, N, O.)

71. On September 28, 2017, Align's Senior Director of Global Product Management for iTero, Leon Rasovsky, sent Align's Global Insights Director, Jami Krueger an email entitled

[REDACTED] which stated [REDACTED]

[REDACTED] (Ex. D.)

72. Mr. Rasovsky's email further stated [REDACTED]

[REDACTED]

[REDACTED] (*Id.*)



73. In response, Ms. Kruger emailed Sumit Mehta and Raghavan NR, third party Align market research vendors, on September 29, 2017 asking them to [REDACTED]

[REDACTED] (*Id.*)

74. Ms. Krueger also copied Align employee Corey Holmes, and stated [REDACTED]

[REDACTED] (*Id.*)

75. On October 2, 2017, Mr. Holmes responded [REDACTED]

[REDACTED] (*Id.*)

76. Mr. Holmes's email included an attachment titled [REDACTED]

[REDACTED] (*Id.*)

77. On information and belief, Align used a Trios scan file to identify at least one party listed in the attachment to Mr. Holmes email titled [REDACTED]

(*See id.*)

78. On October 9, 2017, Mr. Rasovsky emailed Align employees, stating [REDACTED]

[REDACTED]. (Ex. O)

79. On October 10, 2017, Mr. Rasovsky emailed Eric Rosenberg, an Align employee, stating: [REDACTED] (*Id.*)

80. On December 1, 2017, Align's Senior Vice President and Managing Director of iTero as of November 2019, Yuval Shaked, emailed Mr. Pascaud, asking [REDACTED]

[REDACTED] (Ex. E.)

81. Mr. Pascaud responded on December 2, 2017, stating, in part, [REDACTED]

[REDACTED] (*Id.*)

82. Mr. Shaked responded on December 3, 2017, asking [REDACTED]

[REDACTED] (*Id.*)

83. On December 3, 2017, Mr. Pascaud stated [REDACTED]

(*Id.*)

84. On December 5, 2017, Align's Senior Director of Global Product Management for iTero, Mr. Rasovsky, attached a presentation entitled "3Shape assessment" to an email to Lance Johnson, who was Align's Director of Marketing – Competition as of November 2019. (Ex. F.)

85. That "3Shape assessment" includes a slide entitled [REDACTED]

[REDACTED] which includes [REDACTED] (Ex. G.)

86. On December 18, 2017, Align purported to terminate the Scanner Agreement pursuant to Section 2.2. (Exs. H, I.)

87. In emails to at least two Invisalign providers, Align provided offers relating to Align's iTero Element Scanner. (Exs. J, K.)

88. On December 18, 2017, Align emailed [REDACTED], whom Align identified as an [REDACTED]

(Ex. J.)

89. On information and belief, Align used a Trios scan file to identify [REDACTED] as an

[REDACTED] (Ex. J.)

90. In the e-mail to [REDACTED], Align wrote to provide [REDACTED]

[REDACTED] (Ex. J.)

91. This e-mail was signed by Align's then-Vice President and Managing Director of North America, Chris Pucio. (Ex. J.)

92. On December 18, 2017, Align emailed at least one additional person or entity, whom Align identified as an [REDACTED] to provide [REDACTED]

[REDACTED] (Ex. K.)

93. On information and belief, Align used a Trios scan file to identify this additional person or entity as an [REDACTED]

[REDACTED] (Ex. K.)

94. This e-mail was signed by then-Vice President and Managing Director of North America, Chris Pucio. (Ex. K.)

95. In 2018, Align described Mr. Pucio as having "held various leadership roles within sales," and "responsible for the go-to-market strategy and operational execution of all Align Technology products and services for the U.S. region." (Ex. L.)

96. The aforementioned e-mails signed by Mr. Pucio (Exs. J-K) state that [REDACTED]

[REDACTED]:

[REDACTED]

(Exs. J, K.)

97. The e-mails signed by Mr. Puco stated [REDACTED]

[REDACTED] were [REDACTED]

- [REDACTED]

[REDACTED]

(Id.)

98. On information and belief, Align e-mailed more than one other Invisalign provider who submitted Invisalign cases digitally using a Trios intraoral scanner on or around December 18, 2017.

99. On information and belief, Align made offers to more than one other Invisalign provider who submitted Invisalign cases digitally using a Trios intraoral scanner to purchase Align's iTero intraoral scanner on or around December 18, 2017.

100. On information and belief, Align used a Trios scan file to identify each of the more than one other Invisalign providers referenced in paragraphs 98 and 99.

101. Kerri Kling, testified under oath at her October 10, 2019 deposition in *Align Technology Inc. v. 3Shape A/S et. al*, 1:17-cv-01646 (D. Del.) and *Align Technology Inc. v. 3Shape A/S et. al*, 1:17-cv-01647 (D. Del.) that Align made a [REDACTED]

[REDACTED]

[REDACTED] (Ex. C at 303:7-11.)

102. On information and belief, Align used a Trios scan file to identify each of the [REDACTED] referenced in Kerri Kling's testimony quoted in paragraph 101.

103. Align materially breached the Scanner Agreement based at least on the foregoing conduct as described in paragraphs 52-102.

104. The provisions of the Scanner Agreement, including, but not limited to, Sections 3.4, 3.5, and 3.6, were breached by Align prior to its purported termination of the Scanner Agreement and/or survived any such purported termination.

105. Section 3.5 of the Scanner Agreement states, in part:

[REDACTED]

(Ex. A, § 3.5.)

106. Section 17 of the Scanner Agreement states:

[REDACTED]

(Ex. A, § 17.)

107. On information and belief, Align improperly disclosed and misused 3Shape Confidential Information through at least the aforementioned targeted sales and marketing efforts.

108. 3Shape fully performed its obligations under the Scanner Agreement, except those that it was excused from performing or that were waived.

109. Align's breach of the Scanner Agreement has caused damage to Counterclaim-Plaintiffs.

110. In the 1090 Investigation, 3Shape's Vice President of Global Sales and Customer Care, Christoffer Melchior, testified [REDACTED]

[REDACTED] (Exs. M, N.)

111. Mr. Melchior further testified that 3Shape [REDACTED]

[REDACTED] (Exs. M, N.)

112. On information and belief, Align's breach of the Scanner Agreement caused 3Shape to lose sales that it would have made but for Align's breach.

113. On information and belief, Align's breach of the Scanner Agreement also caused 3Shape to suffer reputational harm and loss of goodwill.

114. 3Shape is entitled to recover from Align the damages resulting from that breach, including, but not limited to, lost profits and loss of competitive advantage.

#### **PRAYER FOR RELIEF**

WHEREFORE, Counterclaim-Plaintiffs respectfully request that this Court enter a judgment in their favor and against Counterclaim-Defendant as follows:

- A. Dismissing the Complaint with prejudice and entering judgment for Counterclaim-Plaintiffs;
- B. Declaring that the claims of the '107 patent are invalid, unenforceable, and/or not infringed;
- C. Declaring that the claims of the '901 patent are invalid, unenforceable, and/or not infringed;
- D. Declaring that the claims of the '448 patent are invalid, unenforceable, and/or not infringed;
- E. Declaring that the claims of the '447 patent are invalid, unenforceable, and/or not infringed;



- F. Declaring that the claims of the '175 patent are invalid, unenforceable and/or not infringed;
- G. Finding tortious interference with prospective business relations, unjust enrichment, and unfair competition by Counterclaim-Defendant;
- H. Awarding the Counterclaim-Plaintiffs the damages to which they are entitled by virtue of Counterclaim-Defendant's tortious interference with prospective business relations, unjust enrichment, and other unfair competition;
- I. Finding Counterclaim-Defendants breached the Scanner Agreement;
- J. Awarding Counterclaim-Plaintiffs damages resulting from Counterclaim-Defendant's breach of the Scanner Agreement;
- K. Ordering an accounting of any monetary or other benefits received by Counterclaim-Defendant as a result of its breach of the Scanner Agreement;
- L. Permanently enjoining Counterclaim-Defendant's tortious interference with prospective business relations, unjust enrichment, unfair competition, and further breach of the Scanner Agreement;
- M. Awarding Counterclaim-Plaintiffs the punitive damages to which they are entitled for Counterclaim-Defendants' conduct, including at least Counterclaim-Defendants' tortious interference with prospective business relations and unfair competition.
- N. Awarding Counterclaim-Plaintiffs their reasonable attorney's fees, costs and expenses incurred in this action; and
- O. Awarding any such other and further relief as this Court may deem proper, including, but not limited to, any enhanced damages for any of the aforementioned counterclaims.

DATED: August 28, 2020

Respectfully submitted,

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3Shape, Inc.

**CERTIFICATE OF SERVICE**

I hereby certify that, on August 28, 2020, the foregoing Answer and Affirmative Defenses of Defendants 3Shape A/S and 3Shape, Inc. and CounterClaims of Counterclaim Plaintiffs 3Shape A/S, 3Shape Trios A/S, and 3Shape Inc. to Align Technology Inc.'s First Amended Complaint was electronically filed with the Clerk of Court using CM/ECF, which will send notification of such filing to all counsel of record who are registered with the CM/ECF system.

/s/ James H. S. Levine

James H. S. Levine (Del. Bar No. 5355)